SYSTEM AND METHOD FOR VARYING EXPOSURE TIME FOR DIFFERENT PARTS OF A FIELD OF VIEW WHILE ACQUIRING AN IMAGE

ABSTRACT

A system and method for exposing different parts of a single field of view for various and differing lengths of time while capturing an image is provided. For astrophotography, unwanted light pollution or over-saturation bleeding from nearby or obtrusive stars may be greatly reduced or eliminated while still capturing the image of the nearby brighter star in the same field of view. Also, a system and method for real-time contrast control while capturing an image to optimize signal-to-noise ratio for various parts of the captured image, is provided. An embodiment of the present invention provides such techniques by using spatial light modulator devices, such as a digital micro-mirror device, to controllably mask different portions of light from an image that expose film or a charge-coupled device. A system and method for a way to use a spatial light modulator device as an active and controllable mask for photolithography, is provided.